10: d'Orleans--282-283 T-3 (1891-92) 1894 Laos
116, 136, 825

"In the middle of the night we are suddenly awakened by a loud voice, which sounds from a corner of the room, from the ceiling, or from a neighbouring tree: Tako, tako...ken, ken, ken...oh, oh, followed by a kind of hoarse laugh. The first time it is heard, we are astonished, and find some difficulty in sleeping again; we look about but cannot discover anything. After a little while, we become accustomed to the songs of the hidden guest, who speaks at night in every Laotian house. The natives know it well; sometimes they see it and point it out during the day, but they respect it as a sacred being, a household friend. An idea of protection, a veneration that is even a little superstitious, is attached to its presence in a house....I see that in speaking of the singer I am acquainted with, I have forgotten the important point of introducing it to the reader. The takou (so called by onomatopœia) is simply a [283] large green gecko (cordylus), about a cubit long and three fingers wide, ocellated with beautiful spots of azure blue; a great insect destroyer, but quite harmless to man, by whom it is regarded as a friend."

10: d'Orleans--356-357 T-3 (1891-92) 1894 Laos
116, 114, 136, 137

"The fauna of Indo-China has been studied in so much detail by the expeditions of Garnier, Monhot, Neis, Harmand, and others, that I cannot do better than refer the reader whom this subject may happen to interest, to the records of their researches; and with regard to the flora it is very varied, among the most interesting features of it being the beautiful parasite orchids, some rose and others yellow. The country is [357] very well wooded, too, and I have been able to bring back some forty specimens of wood, chief among which I may mention the teak, called the mal sok, which grows in large quantities on the banks of the Mekong, a few days above Luang Prabang, near Kiangsen, and below the city, near Paklay."

10: d'Orleans--370 T-3 (1891-92) 1894 Laos
116, 136-237

"Paklay owes its importance to its situation on the Mekong at the extremity of the shortest route from the Menam. In the neighbourhood there is a good deal of teak which might be advantageously exploited. Wild animals abound, stags and oxen being killed for their antlers and horns. Some years ago, I am told, a tapir was killed near here, but native information is so little to be trusted that no confidence can be put in this story, and I have never before heard it said, moreover, that tapirs come so high up."

23: Franck--278-279 T-2 (1924) 1926 Laotians
116, 136, 367

"Visitors do not come often to Xieng Khuang; besides, there are things of interest there, and whatever is worth doing, be it only a journey, is worth doing well.

There was the commissaire's zoo, for instance, a score of pets ranging from some distant member of the leopard family to monkeys that looked like puffballs, fittingly domiciled in his garden, with or without chains to assure their allegiance to a master from whose hand the fiercest of them ate with murmurs of pleasure. There are said to be more species of animals in the forests and on the plains of Tran-ninh than in almost any other space of similar size on earth--tigers, panthers, bears, gaur, gibbons, monkeys, deer, pythons, boa-constrictors, and a host of lesser serpents; a cobra was chased out of the yard of one of the French [279] residents that very day; and the museum maintained this quarter-century past by a tropic-emaciated Frenchman was easily proof that the province is an unspoiled paradise of the ornithologist and the collector of butterflies and insects."

23: Franck--340 T-2 (1924) 1926 Laotians
116, 136, 757

"This region is noted for its leeches, especially during the rainy season that was now descending upon us. On that rainy Sunday afternoon the feet of my Kha were all bleeding, and were covered with the scars of what were evidently old leech-bites. These pets snatch upon the passer-by from the bushes overhanging the narrow trails, particularly after a shower; they get in somehow, even though one is not barefooted, soak the traveler's legs and socks in blood before he knows they are there, and he may be all day or all night in getting the flow stopped. In the middle of this third afternoon, chancing to pass a hand over an ankle, I felt a disgustingly soft lump under one of my high socks. Suddenly feeling the other leg with misgiving, I found it had two such unwelcome guests. Not far beyond we halted at a lonely little rest-house in the bush, and while the men rested and washed their feet, some of them put lumps of tobacco, such as they used in their long slim pipes, and other jungle leaves, on the three wounds; but at least one of them did not entirely stop bleeding until the next day."

23: Franck--353 T-2 (1924) 1926 Laotians
116, 136

"Elands abound, and there are great herds of gaur, that wild-like survivor from an earlier age which seems to be found nowhere else, a red-brown beast weighing on the average two thousand kilograms. There were at the camp half a dozen heads of this animal, shot within the past day or two, the foreheads unnaturally high, the female horns closer together than those of the male. The birds of these parts build no nests in the trees, because the monkeys, especially the black long-armed gibbons, steal their eggs. On the other hand partridge and guail, after building their nests in holes in the ground, roost in the trees as a protection against serpents."

68: Mouhot--91-92 N-5 (1858-61) 1864 Laotians
116, 136, 825

"Beetles of the longicorn tribe abound here; [HD: at Khao-Khoc, Siam, inhabited mainly by Laotians] and to-day I have filled a box with more than a thousand new or rare insects. I have even been [92] fortunate enoguh [sic] to replace some of the more valuable kinds which were destroyed or injured by sea-water on board the 'Sir James Brooke.' The villagers come every day to bring me 'beasts,' as they call them, grass-hoppers, scorpions, serpents, tortoises, &c., all presented to me at the end of a stick."

glades, but "instead of the oil trees, bogus teaks with their whitish foliage and their trunks deeply dented with wide grooves, we find gigantic, shade-giving pines; and instead of the bare, powdery or viscous soil, a fine level turf on which it is a pleasure to walk and where it is enjoyable to linger and slow one's pace" (2).

(2) Letter from Captain Rivière, reproduced by Captain Gosselin in Le Laos et le Protectorat français, 1900.

It is also a region of wild beasts, and the inhabitants of the muong of Ma-Ha-Saï come there every year to hunt elephants.

At the very source of the Sé-Bang-Faï there springs up a noteworthy peak about 1200 meters high from which many watercourses flow down to the Annam coast.

South of this point the Annamitic Chain drops to give way to the gap of Aï-Lao (about 410 meters in altitude) on the road from Savannakhet to Quang-Tri. Then the chain rises to form walls which are often more than 2000 meters high in the provinces of Saravane and Attopeu. Thus, Pou-Atouat has an altitude of about 2500 meters. It is an important orographic center from which spring the Sékhong and the Poyo, which belong to the Mékong basin, and also the Song-Buong, a tributary of the Song-Caï which is a coastal river of Annam.

Between the Sédone and the Sékhong, at about the 15th parallel, stands the remarkable plateau of the Bolovens, which takes its name from the Kha tribe which inhabits it. It is a mass about 100 kilometers in diameter, and its height varies between 600 and 1200 meters. Travelers who have explored it have extolled the mildness of the climate, the wealth of the vegetation, the beauty of the plains and the abundance of water, so [50] that Dr. Harmand suggested the idea that the plateau, which could easily be linked by road with the port of Tourane, might be made into the administrative center and sanatorium of our Indo-Chinese empire.

The part which the plateau may be called on to play in the future has been somewhat exaggerated. It would be imprudent to envisage it as a wonderland, [Illustration here] an eldorado destined to a great future from the administrative, commercial and sanitary point of view. Today it is a plateau with well-cultivated slopes which yield fine harvests of cardamom and rice, as well as tobacco, cotton and Chinese nettles [ortie de Chine], and is inhabited by gentle, peaceful folk who live in handsome, well kept-up villages.

313 M. Lussan merely had to see that they were followed at a distance by two light pirogues, the duty of the latter being to explore the banks and islands and push back into the current any of the small rafts which might have gone aground along the way.

"All the logs were then halted above the rapids by lookout posts judiciously located at narrow points in the river. They were again set free, but this time singly in order to traverse the rapids. Below the rapids the logs were collected by the same lookout system, the lookouts now being located at two points on the downstream reaches. The distance between the two points had been calculated so that the logs would pass by the first outpost at night and be collected at the second outpost twelve hours later, that is to say during the day." (Bulletin économique de l'Indo-Chine, 1900.)

We shall study below, in Chapter VII, the methods of cultivating, extracting and exploiting the forest resources and the measures which the administration has taken for their conservation and development.

[309] 2. FAUNA; ANIMAL HIDES AND REMAINS

136 The fauna of Laos is scarcely different from that of India. It is just as varied and just as abundant, proportionately speaking.

Domesticated Fauna

231 Domesticated fauna includes the elephant, horse, buffalo, ox, pig, goat, poultry (chickens and peacocks), turtle-doves, dogs and cats (some with a straight or curved tail, others with a short tail ending in a ball, and still others without a tail, of Siamese origin). [Illustration alongside text here]

Wild Fauna

136 a) Mammals and rodents. These animals include the wild elephant and the rhinoceros (both Indian and Sumatran varieties, that is to say with one or two horns), the buffalo, the ox, the stag, the elk, the buck, the gazelle, the agouti, the wild boar, the otter, a great variety of monkeys (lemurs, paresseux, dormeurs, macaques, gibbons), the scaly anteater, the mongoose (ctenomis), the genet, the civet cat, the shrew-mouse, the polecat, the ordinary squirrel

and the flying squirrel (polatouche assapanick), the muskrat, [310] the water rat, the palm-squirrel, the field mouse, the mouse, the bat, the flying fox, etc. 136

In the forests one also finds domesticated animals which have reverted to a wild state, such as goats, bucks, dogs, cats and most kinds of gallinaceous birds (1). [231]

(1) Some notices also remark the presence of tapirs, but we cannot vouch for the accuracy of this information.

b) Carnivores. These are represented by the tiger, the jaguar, the ocelot, the panther, the tiger-cat, the wild cat, the climbing bear, the cave bear, etc.

c) Birds. In addition to numerous varieties not yet identified, the following have been noted:

1. Long-flying birds: first the birds of prey, such as the mountain eagle, two kinds of vultures, the sparrow hawk, the falcon, the kite, etc.; then the passerines, doves, etc., such as the peacock, the gilded pheasant and the silver pheasant, the wild cock and hen, a large variety of parakeets, the toucan, the hooded horn-bill, the crow, the magpie, the jay, the swallow, the lark, the sparrow, the lapwing, the partridge, the quail, the snipe, the turtle-dove, the pigeon (several varieties), the blackbird, the crane, the green woodpecker, the owl and the screech owl, not to mention a large number of colibris, humming-birds, etc.

2. Water birds and grallatores: the fishing eagle (two varieties), the pelican, the wild goose, the marsh hen, the plover, the cormorant, the grebe, the flamingo, the marabou stork, the heron, the kingfisher, the egret, the swan, the gull, the wagtail, etc.

Reptiles

a) Ophidians. Since varieties of this class are quite numerous, we have summarized them in the opposite table, which is based on a notice by M. Grand, government commissioner in Luang-Prabang.

[311] TABLE OF REPTILES

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Laotian name	Species or genus in French	Maximum Length (meters)
	a. Non-poisonous	
Ngou-Luam	Boa or python	7
Luam-Ho	Same	2
Sing	Snake, black with white belly	1.2
Sa	" with blue and yellow stripes	1.5
Pa	Water snake	1
Bone	Grass snake	1
Khiaou	Snake, green	1
Suak-Khouai	Snake, very slender, with yellow stripes	1.8
Mat-Phot	" with red spots	.5
Phao	Coconut palm snake	.5
Soi-Mak	Snake, very slender, with green spots	.7
	b. Poisonous	
Hao-Hom	Snake, genus Naja	2.5
Hao-Kho-Kham	" genus Cobra	2.2
Kane-Pong	" with white, black, red and yellow rings	1
Sang-Ha	Trigonocephalus	1
Dok-Mak	Whip snake	1
Phao-Nao-Bok	Coconut palm snake	1.8
Phao-Nok-Kaba	" " "	1.8
Ai-Khouang	Jumping snake	.4
Lao	Ichthyophis glutinosa	.3
Hao-Kho-Chong	Viper	1.5

Ngou is the generic term for "snake"

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Ngou-Hao-Ponak	Barking viper	1.5
Hao-Khao-Tao	" "	3.5
Hao-Chong-Ang	Viper, genus Psammodynastes	3
Kiaou-Hang-Heme	Green viper	.2
	c. Extremely poisonous	
Thame-Thane	Black snake	2.5

b) Saurians. This class includes the cayman, the iguana, the chameleon, the flying lizard, the lizard (several varieties), the grey lizard, the gecko or tokkai, etc.

c) Chelonians. These are represented by several varieties of long-necked land and water tortoises. There is also an insect of the scarabaeid genus which resembles a tortoise and whose shell appears to be gilded (pythophagic cheliform).

[312] d) Batrachians. These include the toad and several species of frogs, all of them edible. One of the latter is called "bellowing" or "bullfrog", and with a comparatively small body produces a bellowing noise like that of a bull.

Fish

The principal varieties are enumerated in the table below:

149: Reinach--227 G-3 (no date) 1901 AMI Indochina
Laotian AMS

TABLE OF FISH

Name in Laotian		Type of Scales	Dentition	Type of caudal fin	Length in meters	Circumference (meters)	Weight in kilograms
Pa-	Beuk	No scales	Ruminant	Heterocercal	2.7	1.6	200
	Leum	" "	Pike type	"	1.8	1.0	100
	Sa-Ho	Heavy scales	4 nodosities	Homocercal	.9	.9	60
	Kai	Very fine scales	Pike type	Heterocercal	1.2	.66	35
	Khoun	No scales	" "	"	1.2	.66	35
	Saouat	Fine scales	No teeth	Monocercal	.9	.45	18
	Bun	Heavy scales	" "	Homocercal	.9	.66	25
	Sa	Fine scales	" "	"	.75	.45	18
	Souai	No scales	" "	Monocercal	1.2	.66	24
	Kouang	Very fine scales	" "	Homocercal	.75	.45	18
	Khao	No scales	Pike type, heavy	"	.9	.45	18
	Ling	" "	No teeth	Monocercal	.75	.45	6
	Khop	" "	Pike type	"	.45	.24	3
	Kheung	" "	No teeth	Homocercal	1.2	.9	36
	Hien	Medium red scales	" "	"	.45	.45	5

Pa is the generic term signifying "fish".

TABLE OF FISH (continued)

Pa-	Oua	Medium black scales	No teeth	Homocercal	.25	.45	3
	Pak	Medium white scales	" "	"	.25	.45	3
	Pung	No scales	" "	Monocercal	.45	.45	3
	Phon	Heavy green scales	" "	Heterocercal	.45	.24	1
	Keng	Heavy green scales	" "	"	.45	.24	1

There are also a large number of small fish which are caught with a net or scoop net. These are designated by the descriptive term "Pa-Noi."

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148 Reinach--229 G-3 (no date) 1901 AM1 Indochina
Laotians AM8

[113]

Crustaceans

136 The crayfish, the shrimp and the crab.

Mollusks

Mollusks are very numerous, and a few types are even peculiar to Laos. They include acephalans, lamellibranchiates, gastropods, etc., several of which are edible (1).

[114]

(1) A complete study of the mollusks of Laos was made by M. Pavie and Commander Morlet (their collections are to be seen in the Paris Museum).

Insects

Because of their great numbers and infinite variety, insects have a very interesting, or at least important, place in the fauna of Laos. Despite their small size and weak vocal organs as individuals, when evening comes their collective cries produce a noise which covers all others.

There is still a fine harvest for the entomologist to reap, even after Mouhot, who was the first to make studies of this type in Laos. Lepidoptera, coleoptera, hemiptera, diptera, arachnida--all the types are represented, in the form of many-colored butterflies, brilliant fireflies, hideous, foul-smelling bugs, hardy beetles, dangerous scorpions, scolopendra with a thousand feet, repulsive spiders which are huge and hairy, and finally indefatigable suctoria such as mosquitos, flies, gnats, etc.

825 There are only two types of useful insects. These are the coccus which produces crimson lake or stick-lac, and several kinds of bees which supply honey and wax.

The greater part of all this animal life which we have passed in review is used by the inhabitants of Laos for food and other needs. It also provides certain products in the form of animal remains which are the basis for either local or export trade. A list of these follows:

825 Elephant.....Ivory, teeth, toenails, bones, hide.
Tiger.....Pelts, talons, fangs, bones.
136 [314] Rhinoceros.....Hide, horns.
Bear.....Skins, gall (used in medicines).
Goat, otter, cayman.....Hides and skins.
Scaly anteater.....Scales and skin.
Buffalo, ox, stag, deer.....Hides, horns and antlers.
Peacock, marabou stork
and other birds.....Feathers.
Snakes.....Skins and venom.
Coccus (insect).....Crimson lake.
Bees.....Honey and wax.

3. MINERALOGY

a) Mineral Wealth

135 As we said above, the geological formations of Laos are similar in nature, rate of change and transformations undergone to those in the neighboring countries on the west, northwest and south. Everywhere there is the same original substratum, and this, together with the sediments which have formed in its folds, has been traversed, lifted and dislocated by volcanic thrusts which are less and less apparent as one moves away from the two eruptive nuclei located in the northwest and south, that is to say in Tibet and Malaysia. To be sure, the orographic nucleus which has had the greatest influence on the relief of the country and the formation of the various regions of Laos is the one which, in Tibet, has produced the long ridges of mountains between which the valleys of the great rivers of China, Burma and the Indo-Chinese peninsula have cut their paths.

In the basin of the Mekong, the only one with which we need be concerned here, there are secondary ridges brought about by partial upheavals or folds, which form a series of stepped plateaus and chains of valleys eminently suited to catching the sediment carried down from the peaks and to furthering its distribution in accordance with the laws of gravity. It is to this peculiar disposition that Laos owes its mineral wealth. During the course of centuries the partial dislocations, atmospheric agents, moving waters, etc. disaggregated, split and reduced [315] to stones, and then into gravel and soil, the mountain crests of eruptive rocks which contained gold, precious stones, silver-bearing galena, tin, copper, iron, etc. Once set free